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## Iranian fat-tailed gecko

# *Eublepharis angramainyu*

A large, nocturnal ground-dwelling gecko from the mountains of Iraq, Iran, Syria and Turkey, with pale and dark bands, a fat tail and movable eyelids. It is the largest species in the genus and closely related to *Eublepharis macularius*, but far less common in vivaria, and only a few documented experiences with it in captivity exist.

Family: Eublepharidae  Former name: *Eublepharis ensafi*

KEY FACTS

### THE ANIMAL

| | |
|---|---|
| Adult size | **20-30 cm**<br>total length incl. tail |
| Weight | **100-186 g** |
| Lifespan | **15-20 years** |
| Active | **At night** |
| Lifestyle | **Rock-dwelling and terrestrial** |
| Habitat | **Semi-desert and rocky terrain** |
| Difficulty | **Intermediate** |

### CARE

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|---|---|
| Min. enclosure | **120 × 60 × 45 cm**<br>L × W × H for 1 adult |
| Temperature, day | **28-32 °C** |
| Basking spot | **34-36 °C** |
| Temperature, night | **25-26 °C** |
| Humidity | **50-60%** |
| Water | **Water dish** |
| UVB | **Optional** |
| Diet | **Insects** |
| Kept | **Singly** |

### BREEDING

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|---|---|
| Reproduction | **Egg-laying** |
| Sexually mature | **24 months** |
| Clutch size | **2 eggs** |
| Incubation | **35-89 days**<br>at 26-32 °C |

### PROTECTION AND PAPERWORK

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|---|---|
| CITES | **Not listed** |
| EU annex | **Not listed** |
| IUCN | **Data Deficient (DD)** |

## About the species

*Eublepharis angramainyu* is a stocky, ground-dwelling gecko with eyelids, a thick tail and a body covered in small tubercles. The ground colour is yellow, and a pale stripe runs from the neck down over the tail, flanked on each side by brownish-purple bands. The head is pale with a net-like pattern of thick dark lines. The markings of newly hatched young differ from those of adults: the back has only three dark crossbands, which fade as the animal grows and takes on its adult pattern. Colours and markings vary from region to region.

The species was described in 1966 by Steven Anderson and Alan Leviton from a specimen found in south-western Iran. The scientific species name refers to Angra Mainyu, the spirit of evil and darkness in Zoroastrianism, and alludes to the animal's nocturnal habits. For a long time the animals were counted as *Eublepharis macularius*. A species described in 1986 as *Eublepharis ensafi* is today regarded as the same as *E. angramainyu*. The two species can be crossed, and the offspring are viable and can themselves produce young, but hybrids should not be bred.

It grows to 20-30 cm including the tail, and the tail makes up about 40% of the length. The size depends on the region, and the largest animals come from Ilam Province in Iran. Females are smaller than males and weigh roughly 100-150 g, males roughly 140-186 g. Males have 11-17 pores in front of the vent, arranged in an inverted V, while the pores of females are weak. The tubercles in the skin can release a fluid that may cause numbness, pain and swelling if it gets on the skin, so wash your hands after handling.

When threatened, the animal can raise itself high on its toes, hiss or squeal loudly, and drop its tail. The tail grows back, but with an abnormal shape.

## Distribution and habitat

*Eublepharis angramainyu* is found in north-eastern Syria, northern Iraq, western and south-western Iran and in Turkey. The type locality lies in the Iranian province of Khuzestan, along the road between Masjed Soleyman and Batwand. In Iran the species occurs in the Zagros Mountains, among other places. In south-eastern Turkey it is known from only two localities, and its occurrence there is still regarded as uncertain.

The range is relatively small, and the remaining populations are assumed to be small and fragmented. The species can be numerous locally, but overall numbers have declined, and at the two Turkish localities it is extremely rare. Animals have been collected for international trade, and lack of knowledge about the populations is itself a threat.

> **Native range:** Iraq, Iran, Syria and Turkey.

### HABITAT

The species lives in semi-arid mountain regions at 300-1,000 metres above sea level, where there is almost no vegetation apart from seasonal agriculture. The animal is ground-dwelling and nocturnal. By day it stays hidden in deep crevices and in gypsum caves with plenty of water.

The climate is continental, with hot, dry summers and cooler winters. Precise measurements of temperature and humidity at individual sites are not documented. Based on what is known about the species, it makes sense to imitate a dry surface with deep, more humid hides where the animal can retreat during the day.

Read more: Humidity, misting and ventilation

## Care

### THE ENCLOSURE

An adult needs an enclosure of at least 120 × 60 × 45 cm (length × width × height). The size is an estimate based on the close relative *Eublepharis macularius*, which needs at least 90 × 45 × 45 cm; *E. angramainyu* is clearly larger and heavier. Floor area is the most important, because the animal lives on the ground. Bigger is always better.

Furnish with at least two hides at different temperatures, one on the warm side and one on the cool side, for example of bamboo tubes, stone and cork. In addition there should be a humid hide with damp moss (see the section on humidity), a water bowl and slabs of slate or flat stone that can absorb heat. For substrate, clay or a firm, natural mix of unfertilised soil, sand and clay works well, ideally deep enough for the animal to dig. Fine sand on its own and loose bark chips are not recommended, especially not for young animals. Young are kept singly or two and two in small boxes with paper as substrate.

The enclosure should have good ventilation, for example a mesh lid.

### TEMPERATURE

The species is kept warmer than *Eublepharis macularius*. By day the enclosure should be 28-32 °C, with a warm spot under a spotlight of around 60 W. The hottest spot of 34-36 °C is borrowed from the relative. At night 25-26 °C is maintained. Light and heat are on for 12 hours a day.

A cool resting period in winter has not been described for the species in captivity. The climate in the range has cooler winters, but how cold the animals should be kept is not documented.

Use a halogen or incandescent bulb above the enclosure as the main heat source, so that the animal can warm itself as in the sun, and control it with a thermostat. Heat rocks and heat mats without a thermostat can cause burns. Avoid coloured night bulbs, which disturb the animal's daily rhythm. Measure the surface temperature with a digital thermometer or an infrared

thermometer, not just the air.

Read more: Heat and temperature

### HUMIDITY AND WATER

Humidity is kept at 50-60% by misting the enclosure twice a day. That is more than the 30-40% recommended for *Eublepharis macularius*. Provide good ventilation so that the air does not become stagnant. A constantly wet substrate can make the animal ill.

For shedding, the animal needs a humid hide, for example a box with damp moss. Place it in the middle or towards the cool end. Always remember fresh water in a stable bowl that is low enough that the animal cannot drown. Do not add vitamin drops to the water.

### LIGHTING AND UVB

The animal is nocturnal, but a fixed daily rhythm with 12 hours of light helps it keep track of day and night and promotes appetite.

UVB is not necessary for adult animals when they receive calcium with D3, but young should have a full-spectrum tube with UVB. If you choose UVB for adults, use a weak tube for shade-dwelling animals (Ferguson zone 1), provide plenty of shade, and replace the tube every year. Avoid blue light and coloured night bulbs, which disturb the animal's rhythm.

Read more: Lighting and UVB Read more: Calcium, vitamins and supplements

### FEEDING

*Eublepharis angramainyu* is an opportunistic carnivore. In the wild it takes grasshoppers, scorpions, beetles, spiders and small lizards, among other things. In captivity most feeder insects work: crickets, cockroaches, mealworms and silkworms, given in rotation to provide varied nutrition. Waxworms and large mealworms are fatty and are given only as a treat, at most once a week.

Adults receive around 5 crickets per animal 2-3 times a week and in addition 5 cockroaches once a week. Gravid females and females that have just laid eggs can be given a small mouse once a week. Young receive 5 suitably sized crickets 5 times a week. Do not leave insects in the enclosure all day, because crickets can bite the sleeping animal. Do not catch insects in the garden, as they can make the animal ill.

Gut-load the feeder insects with a nutritious diet for at least 24 hours before they are used. Dust the insects with calcium at every feeding, and also place a dish of calcium powder with D3 in the enclosure. A multivitamin with vitamin A (retinol) once a week for young and every other week for adults is borrowed from *Eublepharis macularius*. It is normal for the animal to stop eating for weeks, for example during the mating season, as long as its weight is stable.

Read more: Feeder animals: keeping and breeding

### BEHAVIOUR AND HANDLING

The species lives alone, and it is not documented how well it does together with conspecifics. In the close relative *Eublepharis macularius*, animals housed together can lose tails, get deep bites and, in the worst case, broken bones, especially the males, and the same is reasonable to expect here. The safest approach is to keep each animal on its own and only put animals together for breeding.

The species is large and can defend itself. When threatened it raises itself on its toes, hisses or squeals, and may bite or wrap its tail around an attacker. Let new animals settle in peace for a couple of weeks, and handle them only calmly and low over the floor. Never grab the tail. Wash your hands before and after touching the animal, because the skin can release an irritating fluid. Because of the limited experience and the size of the species, it is best suited to a keeper who has already kept other geckos.

## Breeding

### SEXUAL MATURITY AND SEXING

Males can be recognised by 11-17 pores in front of the vent, which are arranged in an inverted V and are distinct. In females the pores are weak. The animals can begin to breed when they are about two years old, and the newly hatched young grow quickly until they are fully grown after three to four years. Females should not be bred until they have reached their full weight, because egg laying costs a female a great deal of her calcium reserves.

### MATING

Only a few documented details on breeding *Eublepharis angramainyu* in captivity exist. In the wild the eggs are laid mostly in May and June, and the animals lay several clutches a year. A cool, shorter period in winter, such as the related *Eublepharis macularius* is given, may help bring the animals into breeding condition, but this is not documented for this species.

Put the male in with the female in her enclosure and keep an eye on them the first few nights. Mating can seem violent, and the male bites the female on the neck. Separate the animals if the female is injured. Remember that crossing with *E. macularius* gives viable offspring, so do not pair the two species.

### EGG-LAYING AND CLUTCHES

The female lays clutches of two eggs, several times a year and most often in May and June. A precise number of clutches per year or a precise interval between layings is not documented. Place a laying box with slightly damp vermiculite or coconut fibre in the enclosure, for example a plastic box with a hole in the lid, so that the female does not lay the eggs on the floor of the enclosure.

Give her plenty of calcium and insects throughout the season, and let her have a free hide of her own. If she is markedly emaciated, you should stop breeding and let her rest.

### INCUBATION

Incubation is not documented for *Eublepharis angramainyu*. The figures in the fact box are borrowed from the close relative *Eublepharis macularius*: 26-32 °C and 35-89 days, short at high and long at low temperature. In *E. macularius* temperature determines sex, but this has not been investigated for this species, so treat all temperatures as uncertain.

Carefully move the eggs into a small, tight box with slightly damp vermiculite or perlite without turning them. Mark the top with a pencil, lay the eggs half down in the substrate and place the box in a thermostat-controlled incubator with a couple of small air holes. Eggs that collapse, turn yellow or go mouldy are usually dead, but leave them until you are sure.

Read more: Incubating eggs

### REARING THE YOUNG

No details on rearing the young are documented. Young *Eublepharis angramainyu* have a different pattern from the adults, namely three dark crossbands on the back, which fade with age. They grow quickly and reach full size after three to four years.

Keep the young singly or two and two, and keep young from different clutches apart. A small plastic box with paper or kitchen roll as substrate, underfloor heat, a couple of hides and a humid hide for shedding is enough. Give small, calcium-dusted insects 5 times a week, and weigh the young every week so you notice if any fall behind. Move them up to larger enclosures as they grow.

## Health and common mistakes

Only a little information on diseases in *Eublepharis angramainyu* in captivity exists. The problems below are typical of closely related geckos with the same way of life and must be expected here:

- Shedding problems, where old skin remains stick to the toes and tail tip and can constrict them. A humid hide and lukewarm water to loosen the remains prevent this.
- Metabolic bone disease (rickets) from too little calcium, D3 or UVB, with soft jaws, bent limbs and tremors. It can affect both young and adults. Dust all insects, always keep calcium with D3 available, and give more UVB and calcium at the first signs. See a vet.
- Intestinal blockage if the animal swallows fine substrate, loose bark chips, moss or paper. The floor should be stable, and the hides must not be filled with material the animal can swallow.
- Respiratory infections from a wet substrate and poor ventilation, with wheezing breathing and mucus.
- Lost tails after handling or fights. It is not dangerous, but the tail grows back with an abnormal shape.
- Starvation and weight loss if the food is not varied or the animal is stressed.

Weigh the animal every week and write the weight down. A sudden weight loss is often the first sign of illness, because reptiles hide that they are ill. See a vet with experience in reptiles if the animal loses weight, does not eat for several weeks or looks limp.

Read more: Common diseases and signs of illness

## Always ask someone who knows

This guide is a good place to start, but it cannot replace experience. Animals differ, and much of what matters most is learned from people who have kept the species for years. Talk to a breeder, an experienced keeper or a vet who knows reptiles and amphibians before you get the animal - and again if anything looks wrong.